

NOV 5 1946

R.A. 13150

RM No. L6124



Copy 2

RESEARCH MEMORANDUM

EVALUATION OF GUST AND DRAFT VELOCITIES FROM FLIGHTS

OF P-61c AIRPLANES WITHIN THUNDERSTORMS

III - JULY 12, 1946 TO JULY 18, 1946

AT ORLANDO, FLORIDA

By

H. B. Tolefson

Langley Memorial Aeronautical Laboratory
Langley Field, Va.

Oct. 15, 1946

TECHNICAL
EDITING
WAIVED

NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS

WASHINGTON

Langley Field, Va.

NACA RM No. L6I24

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

RESEARCH MEMORANDUM

EVALUATION OF GUST AND DRAFT VELOCITIES FROM FLIGHTS

OF P-61c AIRPLANES WITHIN THUNDERSTORMS

III - JULY 12, 1946 TO JULY 18, 1946

AT ORLANDO, FLORIDA

By H. B. Tolefson

The gust and draft velocities evaluated from acceleration and airspeed-altitude records taken by NACA instruments installed in P-61c airplanes participating in thunderstorm flights 9, 10, and 11 of July 12, 1946, July 17, 1946, and July 18, 1946, respectively, are presented in tables I and II. These data are of the type presented in references 1 and 2 for previous flights.

In accordance with a recent discussion with a member of the U. S. Weather Bureau staff, motion-picture records of the pilots' instrument panels for the present flights were inspected to note variations in the readings of a milliammeter used in conjunction with other equipment to indicate ambient air temperature. The inspection indicated that the instrument read zero throughout all traverses.

Langley Memorial Aeronautical Laboratory
National Advisory Committee for Aeronautics
Langley Field, Va.

Harold B. Tolefson

Harold B. Tolefson
Aeronautical Engineer

Approved:

Richard V. Rhode

Richard V. Rhode
Chief of Aircraft Loads Division

CME

REFERENCES

1. Tolefson, H. B.: Evaluation of Gust and Draft Velocities from Flights of P-61c Airplanes within Thunderstorms. I - June 29, 1946 to July 8, 1946 at Orlando, Florida. NACA MR No. L6I13a, 1946.
2. Tolefson, H. B.: Evaluation of Gust and Draft Velocities from Flights of P-61c Airplanes within Thunderstorms. II - July 9, 1946 to July 11, 1946 at Orlando, Florida. NACA RM No. L6I16a, 1946.

TABLE I.- SUMMARY OF GUST MEASUREMENTS FROM FLIGHTS
OF P-61c AIRPLANES WITHIN THUNDERSTORMS

Space interval ft x 103	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)		Maximum true gust velocity $U_{t\max}$ (fps)		Gust gradient distance (ft)		No. of gusts
July 12, 1946 - Flight 9								
Airplane 344 Traverse 1		{ Time (EST) - (a) Length of traverse 41.8 sec, 12,885 ft Initial heading (deg) 4 (a)						
0 - 3	26,000	3.1	-4.7	----	-----	-----	-----	2
3 - 6		5.0	-8.8	----	-----	-----	-----	4
6 - 9		3.1	-4.7	----	-----	-----	-----	5
9 - 12		----	-5.3	----	-----	-----	-----	2
12 - 15		----	-----	----	-----	-----	-----	0
Airplane 344 Traverse 2		{ Time (EST) - (a) Length of traverse 55.5 sec, 20,282 ft Initial heading (deg) - (a)						
0 - 3	26,000	5.9	-10.3	----	-----	-----	-----	5
3 - 6		6.3	-7.8	----	-----	-----	-----	2
6 - 9		5.3	-----	12.0	-----	114	-----	1
9 - 12		7.5	-9.1	----	-----	-----	-----	5
12 - 15		8.1	-4.1	15.9	-----	182	-----	3
15 - 18		7.8	-9.1	----	-----	-----	-----	9
18 - 21		4.1	-7.8	----	-----	-----	-----	2
Airplane 333 Traverse 1		{ Time (EST) - (a) Length of traverse 61.5 sec, 20,653 ft Initial heading (deg) - (a)						
		(b)	(b)	(b)	(b)	(b)	(b)	(b)
Airplane 347 Traverse 1		{ Time (EST) 133915 - 134010 Length of traverse 79.0 sec, 21,077 ft Initial heading (deg) 280						
0 - 3	11,000	----	-----	----	-----	-----	-----	1
3 - 6		----	-----	----	-----	-----	-----	1
6 - 9		7.0	-4.8	10.6	-7.7	26	26	17

^aNo motion picture records obtained.

^bFailure in operation of accelerometer prevented computations for gust velocities.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)		Maximum true gust velocity $U_{t\max}$ (fps)		Gust gradient distance (ft)		No. of gusts
July 12, 1946 - Flight 9								
Airplane 347 Traverse 1		{ Time (EST) 133915 - 134010 Length of traverse 79.0 sec, 21.077 ft Initial heading (deg) 280						
9 - 12	11,000	12.1	-9.2	----	----	----	----	17
12 - 15		7.6	----	4.8	----	119	----	5
15 - 18		5.4	-2.5	7.0	-9.9	56	293	8
18 - 21		----	-5.1	5.9	----	100	----	13
21 - 24		----	----	----	----	----	----	0
Airplane 347 Traverse 2		{ Time (EST) 134615 - 134705 Length of traverse 70.0 sec, 18,927 ft Initial heading (deg) 180						
0 - 3	11,000	14.9	-7.3	15.9	-10.9	81	59	9
3 - 6		11.1	-17.1	21.7	-11.7	129	52	13
6 - 9		12.0	-12.6	4.8	----	27	----	12
9 - 12		8.5	-15.2	----	-21.7	----	167	7
12 - 15		7.0	-6.3	----	----	----	----	11
15 - 18		8.2	-5.1	----	----	----	----	5
18 - 21		7.0	----	11.5	----	28	----	1
July 17, 1946 - Flight 10								
Airplane 333 Traverse 1		{ Time (EST) 143105 - 143200 Length of traverse 59.0 sec, 21,429 ft Initial heading (deg) 270						
		(b)	(b)	(b)	(b)	(b)	(b)	(b)
Airplane 333 Traverse 2		{ Time (EST) 143550 - 143720 Length of traverse 56.1 sec, 21.572 ft Initial heading (deg) 90						
		(b)	(b)	(b)	(b)	(b)	(b)	(b)

^b Failure in operation of accelerometer prevented computations for gust velocities.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)	Maximum true gust velocity $U_{t_{max}}$ (fps)	Gust gradient distance (ft)	No. of gusts			
July 17, 1946 - Flight 10								
Airplane 333 Traverse 3	{ Time (EST) 151410 - (c) Length of traverse 838.8 sec, 315,769 ft Initial heading (deg) 20							
		(b)	(b)	(b)	(b)			
Airplane 333 Traverse 4	{ Time (EST) 155137 - (c) Length of traverse 511.6 sec, 152,177 ft Initial heading (deg) 345							
		(b)	(b)	(b)	(b)			
Airplane 347 Traverse 1	{ Time (EST) 143525 - 143700 Length of traverse 111.1 sec, 35,458 ft Initial heading (deg) 90							
0 - 3	16,000	6.7	-10.2	12.2	-----	64	-----	6
3 - 6		----	-6.7	----	----	----	----	3
6 - 9		4.5	-3.8	4.8	----	65	----	9
9 - 12		11.8	-4.8	----	----	----	----	8
12 - 15		6.4	-5.1	----	-13.5	----	355	10
15 - 18		4.8	-9.9	11.5	----	64	----	12
18 - 21		12.1	-9.2	----	----	----	----	10
21 - 24		13.0	-7.0	----	----	----	----	10
24 - 27		5.4	-6.7	10.9	----	31	----	10
27 - 30		12.4	-9.8	28.6	----	193	----	5
30 - 33		7.9	-10.2	10.8	----	97	----	13
33 - 36		11.1	-6.4	----	-8.3	----	183	4
Airplane 347 Traverse 2	{ Time (EST) 144255 - (c) Length of traverse 730.0 sec, 238,293 ft Initial heading (deg) 360							
0 - 3	16,000	9.8	-8.9	----	----	----	----	10
3 - 6		15.8	-12.3	----	----	----	----	5
6 - 9		12.0	-5.7	----	-8.3	----	103	8

^b Failure in operation of accelerometer prevented computations for gust velocities.

^c Film supply for motion-picture camera exhausted before end of traverse.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)		Maximum true gust velocity $U_{t\max}$ (fps)		Gust gradient distance (ft)	No. of gusts	
July 17, 1946 - Flight 10								
Airplane 347 Traverse 2		{ Time (EST) 144255 - (c) Length of traverse 730.0 sec, 238,293 ft Initial heading (deg) 360						
9 - 12	16,000	4.4	-4.1	----	-6.0	-----	140	5
12 - 15		5.1	-5.4	4.1	-----	70	-----	7
15 - 18	16,500	5.7	-4.7	9.4	-----	210	-----	4
18 - 21		7.0	-5.1	9.9	-----	33	-----	7
21 - 24		7.9	-15.2	-----	-----	-----	-----	5
24 - 27		15.5	-18.4	19.4	-14.3	143	167	8
27 - 30		13.0	-19.6	-----	-21.7	-----	58	6
30 - 33		6.6	-7.6	18.1	-12.3	160	184	9
33 - 36		17.4	-11.4	-----	-16.0	-----	158	8
36 - 39		11.4	-13.0	-----	-----	-----	-----	6
39 - 42		3.5	-2.5	4.5	-4.4	96	193	7
42 - 45		-----	-4.1	-----	-----	-----	-----	2
45 - 48		7.6	-7.3	-----	-8.1	-----	167	6
48 - 51		15.5	-8.9	-----	-4.9	-----	129	7
51 - 54		5.4	-5.7	8.5	-----	67	-----	6
54 - 57	16,000	9.2	-3.2	4.0	-----	314	-----	5
57 - 60		2.2	-----	-----	-----	-----	-----	4
60 - 63		4.1	-3.2	-----	-4.4	-----	250	6
63 - 66		3.2	-----	4.1	-----	359	-----	3
66 - 69		3.5	-2.5	6.2	-----	215	-----	6
69 - 72		6.3	-4.4	-----	-5.0	-----	104	7
72 - 75		4.1	-2.8	4.9	-6.2	34	34	7
75 - 78		-----	-2.2	-----	-4.2	-----	34	7
78 - 81		-----	-2.5	-----	-----	-----	-----	4
81 - 84		4.7	-3.8	6.7	-----	65	-----	4
84 - 87		8.2	-8.5	-----	-----	-----	-----	4
87 - 90		15.2	-10.4	7.9	-----	61	-----	6
90 - 93		17.4	-11.1	-----	-21.8	-----	88	9
93 - 96		9.8	-7.0	10.9	-9.0	184	125	9
96 - 99		5.4	-5.7	-----	-4.4	-----	157	5
99 - 102		-----	-3.5	-----	-8.5	-----	310	4
102 - 105		-----	-----	-----	-----	-----	-----	7
105 - 108		6.0	-----	-----	-----	-----	-----	11
108 - 111		7.6	-7.3	13.3	-----	246	-----	11

^cFilm supply for motion-picture camera exhausted before end of traverse.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)	Maximum true gust velocity $U_{t_{max}}$ (fps)	Gust gradient distance (ft)	No. of gusts			
July 17, 1946 - Flight 10								
Airplane 347 Traverse 2		{ Time (EST) 144255 - (c) Length of traverse 730.0 sec, 238,293 ft Initial heading (deg) 360						
111 - 114	16,000	10.4	-6.6	23.1	-----	149	-----	4
114 - 117		6.6	-3.5	-----	-12.7	-----	162	11
117 - 120		5.1	-4.4	-----	-7.8	-----	16	8
120 - 123	15,500	11.4	-2.2	-----	-----	-----	-----	2
123 - 126		10.8	-5.1	9.2	-----	34	-----	3
126 - 129		-----	-6.3	-----	-----	-----	-----	3
129 - 132		3.5	-----	-----	-----	-----	-----	4
132 - 135	16,000	6.3	-4.4	-----	-8.3	-----	65	7
135 - 138		-----	-5.1	2.8	-3.6	95	64	4
138 - 141		-----	-2.8	6.3	-4.2	32	33	6
141 - 144		-----	-3.5	-----	-----	-----	-----	5
144 - 147		-----	-3.2	4.0	-3.5	94	95	5
147 - 150		3.2	-----	-----	-----	-----	-----	3
150 - 153		3.5	-2.5	-----	-----	-----	-----	5
153 - 156		-----	-----	-----	-----	-----	-----	0
156 - 159		-----	-----	-----	-3.8	-----	163	11
159 - 162		3.5	-----	-----	-----	-----	-----	3
162 - 165		-----	-2.8	-----	-4.2	-----	32	5
165 - 168		-----	-----	-----	-----	-----	-----	5
168 - 171		3.2	-4.1	-----	-6.2	-----	63	5
171 - 174		4.4	-3.5	5.6	-----	32	-----	9
174 - 177		4.4	-3.8	-----	-----	-----	-----	7
177 - 180		6.0	-2.2	-----	-----	-----	-----	8
180 - 183	15,500	3.8	-6.3	-----	-6.0	-----	132	4
183 - 186		11.4	-3.2	9.3	-3.8	183	153	5
186 - 189		-----	-----	-----	-----	-----	-----	3
189 - 192		5.1	-3.2	-----	-----	-----	-----	2
192 - 195		6.0	-7.0	-----	-----	-----	-----	8
195 - 198		7.6	-4.4	11.3	-----	64	-----	9
198 - 201		7.0	-7.3	-----	-7.8	-----	32	9
201 - 204		6.0	-8.9	-----	-----	-----	-----	11
204 - 207		5.1	-2.8	6.6	-7.8	238	103	4
207 - 210		7.9	-----	-----	-----	-----	-----	4
210 - 213		-----	-2.8	-----	-----	-----	-----	5

^cFilm supply for motion-picture camera exhausted before end of traverse.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)		Maximum true gust velocity $U_{t\max}$ (fps)		Gust gradient distance (ft)		No. of gusts
July 17, 1946 - Flight 10								
Airplane 347 Traverse 2		{ Time (EST) 144255 - (c) Length of traverse 730.0 sec, 238,293 ft Initial heading (deg) 360						
213 - 216	15,500	4.7	-6.3	----	----	----	----	9
216 - 219		3.8	-4.4	----	-7.6	----	131	6
219 - 222		----	-4.1	----	----	----	----	3
222 - 225		3.5	-2.5	----	----	----	----	8
225 - 228		3.2	-2.8	6.7	----	101	----	7
228 - 231		----	-3.2	----	-4.1	----	68	8
231 - 234		6.0	-6.0	10.5	----	103	----	8
234 - 237	5.4	-4.1	----	-10.8	----	138	5	
237 - 240	----	----	----	----	----	----	2	
Airplane 347 Traverse 3		{ Time (EST) 150415 - 150510 Length of traverse 63.3 sec, 21,031 ft Initial heading (deg) 100						
0 - 3	15,500	10.1	-4.4	----	----	----	----	11
3 - 6		6.6	-4.7	----	-9.5	----	36	10
6 - 9		----	-3.5	----	-3.8	----	105	6
9 - 12	16,000	5.7	-3.8	----	----	----	----	6
12 - 15		8.2	-3.5	14.4	----	65	----	6
15 - 18		9.4	-9.7	8.7	----	156	----	10
18 - 21		3.8	-6.6	6.5	-3.8	152	121	6
Airplane 347 Traverse 4		{ Time (EST) 150710 - (c) Length of traverse 649.0 sec, 198,651 ft Initial heading (deg) 30						
0 - 3	16,000	4.1	-4.4	6.5	-5.9	64	63	6
3 - 6	16,500	4.7	-2.5	----	-9.1	----	62	11
6 - 9		7.5	-4.7	----	-12.1	----	31	12
9 - 12		3.1	-3.7	7.2	----	60	----	6
12 - 15		4.7	-8.4	4.5	----	100	----	9
15 - 18		6.9	-6.9	----	-6.6	----	103	12
18 - 21		7.2	-4.4	11.9	-11.2	102	70	7

^cFilm supply for motion-picture camera exhausted before end of traverse.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)	No. of gusts	
July 17, 1946 - Flight 10								
Airplane 347 Traverse 4		{ Time (EST) 150710 - (c) Length of traverse 649.0 sec, 198,651 ft Initial heading (deg) 30						
21 - 24	16,500	5.0	-4.4	----	-8.3	----	33	6
24 - 27		10.6	-9.1	----	-7.1	----	159	8
27 - 30		6.6	-4.7	----	-5.7	----	32	6
30 - 33		5.3	-10.0	----	-21.8	----	198	14
33 - 36		6.2	-11.2	----	-11.1	----	98	9
36 - 39		5.6	-5.3	----	----	----	----	7
39 - 42		11.9	-9.4	----	-5.7	----	33	10
42 - 45	16,000	10.9	-6.6	----	----	----	----	8
45 - 48		5.3	-4.4	----	----	----	----	12
48 - 51		7.2	-8.1	----	----	----	----	8
51 - 54		5.9	-6.6	6.5	-6.2	65	34	11
54 - 57		10.0	-7.5	----	----	----	----	7
57 - 60	16,500	2.5	-4.4	4.8	----	66	----	9
60 - 63		5.0	-5.0	5.4	-10.9	66	33	9
63 - 66		5.6	-6.6	----	----	----	----	5
66 - 69		7.2	-7.8	----	-9.6	----	98	5
69 - 72		7.2	-7.2	----	-13.6	----	285	4
72 - 75		10.0	-7.2	18.5	----	156	----	7
75 - 78		----	-6.2	----	-4.4	----	135	6
78 - 81		5.6	-2.2	8.3	-6.1	34	70	6
81 - 84		5.0	-6.6	----	-12.5	----	167	10
84 - 87		7.2	-9.7	----	-24.3	----	295	9
87 - 90		5.6	-5.0	----	-10.9	----	62	6
90 - 93		5.6	-7.8	5.9	-6.1	62	61	7
93 - 96		9.4	-6.2	----	-4.9	----	129	8
96 - 99		10.6	-6.2	----	----	----	----	7
99 - 102		3.4	-2.5	4.5	-4.9	100	199	5
102 - 105		5.3	----	----	----	----	----	1
105 - 108	16,000	16.6	-3.1	----	----	----	----	9
108 - 111		10.0	----	----	----	----	----	1
111 - 114	16,500	10.3	-11.9	----	----	----	----	3
114 - 117		5.0	-7.5	----	-6.2	----	86	8
117 - 120	17,000	----	-7.5	----	-10.9	----	160	7

^cFilm supply for motion-picture camera exhausted before end of traverse.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)	No. of gusts
July 17, 1946 - Flight 10							
Airplane 347 Traverse 4		{ Time (EST) 150710 - (o) Length of traverse 649.0 sec, 198,651 ft Initial heading (deg) 30					
120 - 123	17,000	4.4	-6.2	----	-----	-----	5
123 - 126		2.8	-4.7	----	-10.9	171	8
126 - 129		5.6	-5.9	----	-----	-----	8
129 - 132		7.2	-7.2	----	-11.7	207	8
132 - 135	16,500	5.9	-3.7	----	-----	-----	4
135 - 138		5.6	-3.1	5.9	-----	62	6
138 - 141		5.3	-4.1	5.6	-----	96	7
141 - 144		8.1	-9.1	-----	-6.7	93	8
144 - 147		5.9	-3.7	11.2	-12.9	33 100	6
147 - 150		-----	-4.4	-----	-----	-----	6
150 - 153		7.2	-2.8	----	-7.2	137	5
153 - 156		4.4	-5.6	----	-----	-----	7
156 - 159		4.4	-----	-----	-6.6	103	6
159 - 162		4.4	-4.4	10.3	-8.8	164 130	4
162 - 165		3.4	-3.4	8.8	-----	221	8
165 - 168		3.7	-5.6	9.3	-10.5	185 228	3
168 - 171	16,000	5.9	-4.1	3.3	-----	98	5
171 - 174		3.1	-2.8	-----	-----	-----	4
174 - 177		4.1	-4.1	8.1	-----	168	5
177 - 180		-----	-3.1	-----	-5.3	70	2
180 - 183		5.0	-4.1	7.3	-----	106	7
183 - 186		5.0	-4.1	3.8	-----	142	5
186 - 189		3.1	-5.6	-----	-7.7	140	13
189 - 192		4.7	-3.4	-----	-----	-----	7
192 - 195		4.4	-4.1	-----	-----	-----	4
195 - 198		4.1	-7.2	-----	-----	-----	8
198 - 201		2.5	-----	-----	-----	-----	1
Airplane 344 Traverse 1		{ Time (EST) 143445 - 143715 Length of traverse 162.4 sec, 50,034 ft Initial heading (deg) 90					
0 - 3	10,500	-----	-----	-----	-----	-----	0
3 - 6		3.8	-2.9	-----	-----	-----	5

Film supply for motion-picture camera exhausted before end of traverse.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)	No. of gusts
July 17, 1946 - Flight 10					
Airplane 344 Traverse 1 { Time (EST) 143445 - 143715 Length of traverse 162.4 sec, 50,034 ft Initial heading (deg) 90					
6 - 9	10,500	----	-7.0	----	4
9 - 12		3.8	-3.8	----	5
12 - 15		7.6	-9.8	6.8	6
15 - 18		7.9	-7.6	26.7	8
18 - 21	11,000	7.0	-7.0	21.2	7
21 - 24		8.2	-9.5	18.8	6
24 - 27		7.9	-14.9	8.0	11
27 - 30		7.6	-9.8	9.2	11
30 - 33		19.6	-23.1	----	8
33 - 36		9.2	-7.6	----	5
36 - 39		9.8	-15.2	12.6	10
39 - 42		20.9	-11.4	----	10
42 - 45		7.9	-19.3	14.6	11
45 - 48		6.3	-7.9	----	8
48 - 51		----	----	----	0
Airplane 344 Traverse 2 { Time (EST) 144405 - (c) Length of traverse 637.5 sec, 192,298 ft Initial heading (deg) 360					
0 - 3	11,000	17.6	-7.5	24.8	7
3 - 6		3.8	-6.3	----	7
6 - 9		3.8	-11.3	----	3
9 - 12		3.8	-6.0	----	8
12 - 15		3.8	-7.5	----	2
15 - 18		3.8	-3.8	----	2
18 - 21		3.8	-7.9	11.4	6
21 - 24		5.0	-3.8	9.8	6
24 - 27		3.8	-4.1	6.2	4
27 - 30		9.4	-6.9	----	4
30 - 33		4.7	-6.9	-11.6	3
33 - 36		7.2	-8.5	13.4	6
36 - 39		3.8	----	----	1

^cFilm supply for motion-picture camera exhausted before end of traverse.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)	Maximum true gust velocity $U_{t_{max}}$ (fps)	Gust gradient distance (ft)	No. of gusts			
July 17, 1946 - Flight 10								
Airplane 344 Traverse 2		{ Time (EST) 144405 - (c) Length of traverse 637.5 sec, 192,298 ft Initial heading (deg) 360						
39 - 42	11,000	2.8	-5.0	----	-14.9	-----	31	3
42 - 45		5.3	-8.2	----	-15.6	-----	31	3
45 - 48		14.8	-8.2	24.5	-----	212	-----	7
48 - 51		11.6	-11.9	----	-----	-----	-----	7
51 - 54		4.4	-7.5	----	-----	-----	-----	6
54 - 57		7.9	-7.2	6.3	-----	243	-----	9
57 - 60		7.9	-8.2	----	-19.2	-----	314	5
60 - 63		3.8	-7.9	----	-----	-----	-----	3
63 - 66		6.3	-8.5	----	-11.4	-----	120	8
66 - 69		4.1	-----	-----	-----	-----	-----	1
69 - 72		4.1	-4.7	13.5	-----	175	-----	2
72 - 75		4.1	-8.2	10.4	-----	146	-----	5
75 - 78		2.5	-7.2	-----	-----	-----	-----	2
78 - 81		6.3	-11.0	10.5	-----	116	-----	5
81 - 84		6.6	-10.7	16.8	-----	113	-----	7
84 - 87		7.9	-4.7	9.6	-----	61	-----	9
87 - 90		----	-7.5	-----	-11.7	-----	91	3
90 - 93		----	-3.1	----	-----	-----	-----	2
93 - 96		----	-6.0	----	-----	-----	-----	1
96 - 99		----	-3.8	----	-----	-----	-----	1
99 - 102		6.3	-6.3	18.8	-----	60	-----	3
102 - 105		10.1	-13.8	23.3	-----	61	-----	6
105 - 108		7.2	-5.7	21.6	-----	58	-----	5
108 - 111		----	-----	----	-----	-----	-----	0
111 - 114		----	-3.1	----	-----	-----	-----	2
114 - 117		2.5	-----	10.0	-----	28	-----	1
117 - 120		4.1	-8.2	----	-----	-----	-----	2
120 - 123	10,500	3.1	-----	6.7	-----	145	-----	1
123 - 126		6.9	-----	14.4	-----	322	-----	1
126 - 129		7.9	-11.9	13.4	-21.4	90	205	6
129 - 132		12.3	-8.2	22.6	-12.0	144	370	4
132 - 135		6.9	-3.8	16.7	-12.3	30	123	8
135 - 138		9.1	-5.3	7.9	-8.6	60	152	7

^cFilm supply for motion-picture camera exhausted before end of traverse.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)	No. of gusts			
July 17, 1946 - Flight 10								
Airplane 344 Traverse 2		{ Time (EST) 144405 - (c) Length of traverse 637.5 sec, 192,298 ft Initial heading (deg) 360						
138 - 141	10,500	5.3	-7.9	----	----	2		
141 - 144		6.0	-2.2	9.9	213	3		
144 - 147		----	----	----	----	0		
147 - 150		----	-3.1	----	-10.3	280	2	
150 - 153		----	-4.4	----	-9.1	31	3	
153 - 156		----	-7.2	3.9	-12.9	62	4	
156 - 159		6.9	-6.0	----	----	----	3	
159 - 162		----	----	----	----	----	0	
162 - 165		6.0	-6.9	----	----	----	4	
165 - 168		6.9	-6.0	----	----	----	3	
168 - 171		6.9	-6.0	----	----	----	3	
171 - 174		----	----	----	----	----	0	
174 - 177		----	----	----	----	----	0	
177 - 180		----	----	----	----	----	0	
180 - 183		----	-6.9	----	-11.5	209	1	
183 - 186		8.2	-6.9	----	-9.4	117	5	
186 - 189		----	-7.2	----	----	----	2	
189 - 192		2.5	-8.8	----	-7.5	57	4	
192 - 195		2.5	----	----	----	----	1	
Airplane 344 Traverse 3		{ Time (EST) 150505 - (c) Length of traverse 437.1 sec, 134,219 ft Initial heading (deg) 360						
0 - 3	10,500	2.2	-3.8	11.0	-9.8	31	184	5
3 - 6	11,000	----	----	----	----	----	----	0
6 - 9		----	----	----	----	----	----	0
9 - 12		----	-11.6	----	-29.7	----	511	3
12 - 15	10,500	----	----	----	----	----	----	0
15 - 18		----	-3.8	----	-8.7	----	123	1
18 - 21		3.8	-7.5	12.9	-14.4	121	30	16
21 - 24	10,500	11.0	-7.2	13.6	-11.8	31	63	11
24 - 27		3.8	-15.0	18.0	----	158	----	2

^cFilm supply for motion-picture camera exhausted before end of traverse.

TABLE I. - SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft x 10 ³	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)		No. of gusts
July 17, 1946 - Flight 10								
Airplane 344 Traverse 3		{ Time (EST) 150505 - (c) Length of traverse 437.1 sec, 134,219 ft Initial heading (deg) 360						
27 - 30	10,500	3.8	-7.2	----	-9.2	-----	190	6
30 - 33		6.9	-----	19.1	-----	119	-----	2
33 - 36	11,000	3.1	-3.8	11.8	-----	88	-----	6
36 - 39		2.8	-6.6	-----	-----	-----	-----	5
39 - 42		4.4	-6.6	11.4	-19.8	60	311	8
42 - 45		7.8	-4.4	14.0	-11.4	120	120	5
45 - 48		4.1	-----	-----	-12.7	-----	93	1
48 - 51		8.1	-10.7	18.0	-----	146	-----	8
51 - 54		19.4	-12.5	36.3	-----	152	-----	11
54 - 57	10,500	7.5	-7.5	11.1	-10.9	93	124	6
57 - 60	11,000	11.9	-10.7	-----	-----	-----	-----	5
60 - 63		5.3	-7.8	-----	-12.9	-----	119	5
63 - 66		-----	-6.3	-----	-----	-----	-----	2
66 - 69		6.0	-6.9	-----	-----	-----	-----	10
69 - 72		2.8	-4.4	8.7	-10.2	152	92	4
72 - 75		6.0	-4.4	-----	-7.2	-----	154	3
75 - 78		4.1	-4.4	7.4	-6.5	60	90	4
78 - 81		5.6	-7.8	10.7	-----	89	-----	6
81 - 84		4.1	-7.5	-----	-14.0	-----	121	4
84 - 87		6.3	-6.9	-----	-12.9	-----	120	6
87 - 90		4.1	-7.8	15.8	-19.0	236	149	4
90 - 93		3.1	-6.9	-----	-8.9	-----	238	5
93 - 96		4.1	-3.8	12.5	-----	59	-----	2
96 - 99		7.5	-6.6	16.7	-----	216	-----	4
99 - 102		7.5	-7.2	8.8	-----	218	-----	3
102 - 105		3.8	-5.3	6.5	-9.4	278	342	2
105 - 108		-----	-2.8	-----	-4.6	-----	156	2
108 - 111		-----	-7.2	-----	-----	-----	-----	1
111 - 114	10,500	3.8	-----	7.4	-----	251	-----	2
114 - 117		-----	-----	-----	-----	-----	-----	0
117 - 120		-----	-3.4	-----	-----	-----	-----	1
120 - 123		7.5	-----	-----	-----	-----	-----	1
123 - 126		3.8	-7.2	6.2	-----	125	-----	2

*Film supply for motion-picture camera exhausted before end of traverse.

TABLE I. - SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)	Maximum true gust velocity $U_{t_{max}}$ (fps)	Gust gradient distance (ft)	No. of gusts			
July 17, 1946 - Flight 10								
Airplane 344 Traverse 3	{ Time (EST) 150505 - (c) Length of traverse 437.1 sec, 134,219 ft Initial heading (deg) 360							
126 - 129	10,500	----	-6.6	----	-11.0	-----	216	4
129 - 132		----	-7.5	----	-13.5	-----	62	1
132 - 135		----	-3.8	----	-----	-----	-----	1
July 18, 1946 - Flight 11								
Airplane 344 Traverse 1	{ Time (EST) 152825 - 153104 Length of traverse 169.4 sec, 51,868 ft Initial heading (deg) 360							
0 - 3	19,500	----	-----	----	-----	-----	-----	0
3 - 6		----	-----	----	-----	-----	-----	0
6 - 9		----	-----	----	-----	-----	-----	0
9 - 12	20,000	----	-----	----	-----	-----	-----	0
12 - 15		----	-----	----	-----	-----	-----	0
15 - 18		----	-----	----	-----	-----	-----	0
18 - 21		4.7	-----	----	-----	-----	-----	1
21 - 24		----	-----	----	-----	-----	-----	0
24 - 27		----	-2.5	----	-----	-----	-----	1
27 - 30	20,500	----	-----	----	-----	-----	-----	0
30 - 33		----	-4.3	----	-----	-----	-----	1
33 - 36		----	-6.2	----	-7.9	-----	153	2
36 - 39		8.7	-8.4	----	-----	-----	-----	4
39 - 42		6.8	-12.1	16.4	-12.7	281	123	3
42 - 45	21,000	7.4	-5.0	----	-----	-----	-----	2
45 - 48		5.6	-8.7	17.5	-----	331	-----	4
48 - 51		6.2	-10.2	----	-15.2	-----	71	4
51 - 54		----	-4.3	----	-5.7	-----	71	1

^cFilm supply for motion-picture camera exhausted before end of traverse.

TABLE I. - SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft x 10 ³	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)	No. of gusts		
July 18, 1946 - Flight 11									
Airplane 344 Traverse 2		{ Time (EST) - (a) Length of traverse 452.4 sec, 151,571 ft Initial heading (deg) - (a)							
0 - 3	20,500	15.4	-7.1	10.7	-----	269	-----	7	
3 - 6		3.1	-3.1	9.7	-----	33	-----	3	
6 - 9		3.1	-7.4	7.7	-----	98	-----	3	
9 - 12		5.6	-10.5	-----	-35.8	-----	209	5	
12 - 15		-----	-10.5	-----	-----	-----	-----	2	
15 - 18		21,000	12.0	-8.9	-----	-----	-----	-----	3
18 - 21			-----	-----	-----	-----	-----	-----	0
21 - 24			-----	-----	-----	-----	-----	-----	0
24 - 27			-----	-----	-----	-----	-----	-----	0
27 - 30			-----	-----	-----	-----	-----	-----	0
30 - 33	-----		-4.6	-----	-11.1	-----	33	4	
33 - 36	-----		-7.1	-----	-11.5	-----	67	3	
36 - 39	-----		-4.0	-----	-----	-----	-----	1	
39 - 42	-----		-6.5	-----	-----	-----	-----	1	
42 - 45	-----		-4.0	-----	-----	-----	-----	2	
45 - 48	-----	-----	-----	-----	-----	-----	0		
48 - 51	-----	-----	-----	-----	-----	-----	0		
51 - 54	-----	-----	-----	-----	-----	-----	0		
54 - 57	-----	3.1	-3.1	-----	-7.5	-----	134	2	
57 - 60	-----	-----	-7.1	-----	-13.6	-----	267	2	
60 - 63	-----	-----	-4.0	-----	-----	-----	-----	2	
63 - 66	-----	5.6	-2.2	-----	-----	-----	-----	2	
66 - 69	-----	3.1	-7.1	-----	-9.7	-----	32	4	
69 - 72	-----	2.5	-4.9	13.6	-8.3	33	65	2	
72 - 75	-----	4.0	-4.6	-----	-----	-----	-----	3	
75 - 78	-----	8.0	-2.2	19.3	-----	33	-----	4	
78 - 81	-----	8.0	-7.1	-----	-----	-----	-----	3	
81 - 84	-----	5.6	-7.7	14.8	-15.9	34	374	3	
84 - 87	-----	-----	-7.7	-----	-9.6	-----	34	4	
87 - 90	-----	-----	-3.1	-----	-----	-----	-----	1	
90 - 93	-----	-----	-7.1	-----	-----	-----	-----	3	
93 - 96	-----	-----	-----	-----	-----	-----	-----	0	
96 - 99	-----	-----	-----	-----	-----	-----	-----	0	

^aNo motion-picture records obtained.

TABLE I. - SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)	No. of gusts
July 18, 1946 - Flight 11							
Airplane 344 Traverse 2		{ Time (EST) - (a) - Length of traverse 452.4 sec, 151,571 ft Initial heading (deg) - (a)					
99 - 102	21,000	----	----	----	----	----	0
102 - 105		----	----	----	----	----	0
105 - 108		----	----	----	----	----	0
108 - 111		----	----	----	----	----	0
111 - 114		9.9	-9.6	----	----	----	3
114 - 117	21,500	----	-6.2	----	----	----	2
117 - 120		6.2	-7.4	----	----	----	5
120 - 123		6.5	-3.1	----	-8.6	172	8
123 - 126		6.5	-17.6	----	-19.2	99	5
126 - 129		11.7	-9.3	23.2	-21.5	34 243	6
129 - 132	21,000	8.0	-10.2	----	----	----	9
132 - 135		10.5	----	----	-4.2	106	2
135 - 138		13.0	----	----	----	----	1
138 - 141		5.9	-4.3	----	----	----	4
141 - 144		6.2	-7.4	9.8	----	174	3
144 - 147		3.7	-7.4	----	-12.8	141	4
147 - 150		----	----	----	----	----	0
150 - 153		----	----	----	----	----	0
Airplane 344 Traverse 3		{ Time (EST) 153737 - 153809 Length of traverse 47.8 sec, 16,600 ft Initial heading (deg) - 350					
0 - 3	21,000	----	-4.6	----	-8.6	138	1
3 - 6		8.5	-8.2	----	-17.8	312	6
6 - 9		4.0	-4.6	16.2	----	67	4
9 - 12	20,500	8.8	-7.6	27.3	----	164	5
12 - 15		7.9	-10.0	11.8	----	70	8
15 - 18		7.0	-5.5	----	-2.2	147	5

^aNo motion-picture records obtained.

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)		Maximum true gust velocity $U_{t_{max}}$ (fps)		Gust gradient distance (ft)	No. of gusts	
July 18, 1946 - Flight 11								
Airplane 344 Traverse 4		{ Time (EST) 160447 - 160517 Length of traverse 51.9 sec, 18,469 ft Initial heading (deg) 120						
0 - 3	21,000	12.4	-11.2	----	-31.4	-----	491	8
3 - 6		10.9	-3.6	----	-----	-----	-----	3
6 - 9		10.0	-11.5	12.6	-----	211	-----	6
9 - 12		----	-5.1	----	-----	-----	-----	2
12 - 15		3.6	-4.5	----	-----	-----	-----	3
15 - 18		8.8	-15.4	16.8	-----	247	-----	4
18 - 21		----	-----	----	-----	-----	-----	0
Airplane 347 Traverse 1		{ Time (EST) 152758 - 153215 Length of traverse 269.9 sec, 80,071 ft Initial heading (deg) 360						
0 - 3	11,500	----	-5.6	----	-9.4	-----	421	1
3 - 6		----	-----	----	-----	-----	-----	0
6 - 9		----	-----	----	-----	-----	-----	0
9 - 12		----	-----	----	-----	-----	-----	2
12 - 15		----	-----	----	-----	-----	-----	0
15 - 18		----	-----	----	-----	-----	-----	0
18 - 21		----	-----	----	-----	-----	-----	0
21 - 24		----	-----	----	-----	-----	-----	0
24 - 27		----	-----	----	-----	-----	-----	1
27 - 30		12,000	----	-2.5	----	-----	-----	-----
30 - 33	----		-----	----	-----	-----	-----	0
33 - 36	----		-2.5	----	-3.8	-----	86	6
36 - 39	3.1		-3.4	6.2	-5.3	59	30	9
39 - 42	----		-4.4	----	-7.1	-----	90	6
42 - 45	4.1		-----	----	-----	-----	-----	5
45 - 48	2.5		-4.1	----	-6.2	-----	59	-----
48 - 51	3.1		-5.6	6.2	-4.6	116	58	7
51 - 54	2.8		-3.7	----	-----	-----	-----	9
54 - 57	5.3		-2.5	----	-6.7	-----	62	6
57 - 60	4.4		-3.4	----	-8.6	-----	63	10
60 - 63	4.1		-4.4	4.6	-7.1	61	126	13
63 - 66	4.4		-5.0	----	-7.1	-----	90	9
66 - 69	----		-3.4	4.4	-----	90	-----	4
69 - 72	9.1	-5.3	----	-----	-----	-----	9	

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft x 10 ³	Pressure altitude (ft)	Maximum effective gust velocity $U_{e \max}$ (fps)		Maximum true gust velocity $U_{t \max}$ (fps)		Gust gradient distance (ft)		No. of gusts
July 18, 1946 - Flight 11								
Airplane 347 Traverse 1		{ Time (EST) 152758 - 153215 Length of traverse 269.9 sec, 80,071 ft Initial heading (deg) 360						
72 - 75 75 - 78 78 - 81	12,000	5.9 4.4 ----	-4.4 -4.4 -----	---- 5.3 ----	-7.5 -6.2 -----	----- 30 -----	92 187 -----	11 6 0
Airplane 347 Traverse 2		{ Time (EST) 153642 - (c) Length of traverse 532.7 sec, 171,129 ft Initial heading (deg) 250						
0 - 3 3 - 6 6 - 9 9 - 12 12 - 15 15 - 18 18 - 21 21 - 24 24 - 27 27 - 30 30 - 33 33 - 36 36 - 39 39 - 42 42 - 45 45 - 48 48 - 51 51 - 54 54 - 57 57 - 60 60 - 63 63 - 66 66 - 69 69 - 72 72 - 75	11,000 11,500 12,000 <							

^cFilm supply for motion-picture camera exhausted before end of traverse.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Continued

Space interval ft $\times 10^3$	Pressure altitude (ft)	Maximum effective gust velocity $U_{e\max}$ (fps)	Maximum true gust velocity $U_{t\max}$ (fps)	Gust gradient distance (ft)	No. of gusts			
July 18, 1946 - Flight 11								
Airplane 347 Traverse 2	{ Time (EST) 153642 - (c) Length of traverse 552.7 sec, 171,129 ft Initial heading (deg) 250							
75 - 78	12,000	4.7	-----	-----	-----	2		
78 - 81		4.3	-3.7	-----	-7.2	65	12	
81 - 84		2.8	-4.3	4.5	-----	63	11	
84 - 87		4.3	-3.4	8.0	-4.0	93	31	8
87 - 90		-----	-3.4	-----	-----	-----	-----	7
90 - 93		2.8	-1.9	-----	-6.7	-----	12	7
93 - 96		2.5	-----	-----	-----	-----	-----	4
96 - 99		2.5	-2.2	4.5	-----	63	-----	11
99 - 102		4.0	-2.2	-----	-3.2	-----	97	7
102 - 105		2.8	-2.8	5.2	-4.6	32	32	9
105 - 108		2.5	-2.2	-----	-6.2	-----	63	10
108 - 111		2.5	-2.5	5.3	-3.5	31	61	4
111 - 114		-----	-2.8	-----	-----	-----	-----	3
114 - 117		1.9	-2.2	-----	-----	-----	-----	4
117 - 120		-----	-----	-----	-----	-----	-----	4
120 - 123		-----	-----	3.6	-----	33.0	-----	4
123 - 126		3.1	-----	3.6	-----	68.0	-----	6
126 - 129		-----	-----	-----	-----	-----	-----	0
129 - 132		-----	-2.8	-----	-----	-----	-----	1
132 - 135		-----	-2.8	-----	-----	-----	-----	4
135 - 138		-----	-----	-----	-----	-----	-----	3
138 - 141		-----	-----	-----	-----	-----	-----	1
141 - 144		-----	-----	-----	-----	-----	-----	4
144 - 147		-----	-----	-----	-----	-----	-----	5
147 - 150		2.2	-3.4	-----	-4.6	-----	159	4
150 - 153		3.7	-6.2	5.1	-6.7	62	62	13
153 - 156		4.7	-6.8	-----	-18.1	-----	32	11
156 - 159		4.7	-6.8	4.0	-----	64	-----	6
159 - 162		4.7	-4.7	9.9	-----	31	-----	17
162 - 165		11.8	-9.6	14.9	-----	31	-----	13
165 - 168		13.4	-20.2	20.9	-37.9	61	305	8
168 - 171		6.8	-7.8	-----	-----	-----	-----	6
171 - 174		-----	-----	-----	-----	-----	-----	0

^cFilm supply for motion-picture camera exhausted before end of traverse.

TABLE I.- SUMMARY OF GUST MEASUREMENTS - Concluded

Space interval ft x 10 ³	Pressure altitude (ft)	Maximum effective gust velocity $U_{e_{max}}$ (fps)	Maximum true gust velocity $U_{t_{max}}$ (fps)	Gust gradient distance (ft)	No. of gusts	
July 18, 1946 - Flight 11						
Airplane 347 { Time (EST) 155456 - 155628 Traverse 3 { Length of traverse 109.6 sec, 34,528 ft Initial heading (deg) 320						
0 - 3	11,000	----	----	----	0	
3 - 6		10.5	-12.9	----	6	
6 - 9		11.4	-10.8	6.1 -18.7	10	
9 - 12		14.2	-5.5	----	9	
12 - 15		4.9	-6.8	7.0 -7.5	15	
15 - 18		12.0	-10.8	7.6	124	9
18 - 21		6.2	-3.7	21.6	121	14
21 - 24		2.8	-4.3	5.6 -9.0	155	9
24 - 27		2.8	-2.8	----	----	7
27 - 30		----	----	----	----	2
30 - 33		4.0	-2.2	----	----	4
33 - 36		4.3	-3.4	----	----	4
Airplane 347 { Time (EST) 155805 - 160010 Traverse 4 { Length of traverse 118.9 sec, 36,091 ft Initial heading (deg) 170						
0 - 3	11,000	2.5	-2.5	----	6	
3 - 6		2.8	-2.5	----	10	
6 - 9		5.8	-2.8	3.7 -3.8	31	10
9 - 12		3.4	-5.8	7.3 -5.6	58	10
12 - 15		4.9	-4.6	7.3	58	8
15 - 18		4.6	-4.0	8.3 -11.0	58	12
18 - 21		3.1	-7.1	9.0 -12.2	147	9
21 - 24		11.4	-6.1	----	----	12
24 - 27		13.2	-8.3	-14.3	64	11
27 - 30		7.1	-23.4	----	----	6
30 - 33		----	-2.8	----	----	4
33 - 36		----	----	----	----	0
36 - 39	----	----	----	----	0	

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

TABLE II - SUMMARY OF DRAFT MEASUREMENTS FROM FLIGHTS OF
P-61c AIRPLANES WITHIN THUNDERSTORMS

Date	Flight no.	Air-plane no.	Assigned altitude (ft)	Traverse no.	Draft location from cloud entry (ft)		Draft extent (ft)	Average draft velocity (fps)
					Start	End		
7-12-46	9	344	26,000	a ₁				
				a ₂				
		333	21,000	a ₁				
		347	11,000	a ₁				
				2	10,334	12,078	1,744	35.4
7-17-46	10	333	21,000	a ₁				
				a ₂				
				3	14,957	20,118	5,161	14.0
					49,054	52,477	3,423	16.0
					70,234	74,182	3,948	-28.8
					130,961	136,185	5,224	17.8
					155,058	161,373	6,315	19.2
					221,031	230,008	8,977	-25.5
				4	10,673	16,035	5,362	25.8
					40,036	45,835	5,799	15.2
					68,031	71,171	3,140	24.0
					114,613	117,710	3,097	18.2
		347	16,000	1	3,710	10,704	6,994	-10.6
				2	27,353	28,940	1,587	-42.6
					45,133	49,686	4,553	-29.2
					93,495	97,955	4,460	-22.7
					113,875	122,078	8,203	-20.8
					203,966	207,630	3,664	-28.0
					221,152	237,175	16,023	-13.6
				a ₃				

^aNo draft velocities indicated by records.

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

TABLE II.- SUMMARY OF DRAFT MEASUREMENTS - Concluded

Date	Flight no	Air-plane no.	Assigned altitude (ft)	Traverse no.	Draft location from cloud entry (ft)		Draft extent (ft)	Average draft velocity (fps)
					Start	End		
7-17-46	10	347	16,000	4	35,558	40,175	4,617	-20.5
					43,000	48,299	5,299	-18.5
					61,691	67,442	5,751	12.1
					97,333	102,879	5,546	-16.1
					105,967	108,531	2,564	-40.0
					144,667	150,338	5,671	-12.4
					168,000	170,930	2,930	-31.1
		344	11,000	1	8,718	12,141	3,423	-10.2
					12,141	24,798	12,657	7.2
				2	118,782	125,301	6,519	-9.4
					138,797	150,281	11,484	-8.3
				3	51,404	55,519	4,115	-14.7
					70,766	81,827	11,061	9.0
7-18-46	11	344	21,000	a ₁				
				2	25,109	31,668	6,559	8.4
				a ₃				
				a ₄				
		347	11,000	1	52,703	55,207	2,504	-14.8
				2	20,128	26,024	5,896	21.0
					96,709	99,882	3,173	-17.0
				a ₃				
				a ₄				

^aNo draft velocities indicated by records.

NASA Technical Library



3 1176 01436 2710